IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	Confirmation No. 1683
Koichi HASEGAWA et al.	:	Attorney Docket No. 2006_0570A
Serial No. 10/575,725	:	Group Art Unit 1793
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SPUTTERING TARGET MATERIAL

DECLARATION UNDER RULE 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Koichi HASEGAWA, hereby declare as follows:

That I finished, in March 1996, the first half of doctoral course of Metal Engineering at the Department of Engineering of Graduate School of Kansai University;

That, in April of the same year, I joined Ishifuku Metal Industry Co., Ltd., and was assigned to Research & Development Institute of the same company, where I have since engaged in the research and development of heat-resistant materials, sputtering target materials for the formation of thin film, and precious metal alloys (e.g., materials for accessories) up to the present;

That I am one of the co-inventors named in the above-identified Application;

That the following experiments were carried out by myself, or under my supervision and control.

Example 4-1 and Comparative Examples 4-1 to 4-3

On an Ag target, chips selected from Ag-P alloy, Pt, Ni and Ag-In alloy were placed in combination. Subsequently, by RF magnetron sputtering

method, a thin film of Ag base alloy of 130 nm in film thickness was formed on a glass substrate, and, then, the makeup of said thin film was analyzed by wavelength dispersive X-ray fluorometry. Results are shown in Table 8 below.

Table 8

	Sample No.	Makeup (mass %)
Example	4-1	0.01P – 0.58 Pt – 0.29 In – Rest Ag
Comparative Example	4-1	Ag
	4-2	0.01P – 0.58 Pt – Rest Ag
	4-3	0.01P – 0.58 Pt – 0.27 Ni – Rest Ag

The sulfurization resistance of thus obtained thin film was measured by the method which is mentioned in the present specification, page 10, line 18 to page 11, line 10. Results are shown in Table 9 below.

Table 9

		Rate of change (%)	
	Sample No.	Measured wavelength 400 nm	Measured wavelength 700 nm
Example	4-1	50.9	24.0
Comparative Example	4-1	70.5	51.4
	4-2	77.8	39.1
	4-3	73.3	97.8

It is seen from Table 9 that the thin film of Example 4-1 in accordance with the present invention shows small rate of change of reflectance at wavelengths of 400 nm and 700 nm, in particular at 400 nm, as compared with thin films of Comparative Examples 4-1, 4-2 and 4-3, which means that the thin film of Example 4-1 has good sulfurization resistance.

Example 5-1 and Comparative Examples 5-1 to 5-3

By RF magnetron sputtering method, a thin film of Ag base alloy of 130 nm in film thickness was formed, on a glass substrate, with sputtering target materials of makeup as shown in Table 10 below.

Table 10

	Sample No.	Makeup (mass %)
Example	5-1	0.85 Cu – 0.15 P – Rest Ag
Comparative Example	5-1	Ag
	5-2	0.60 Cu – Rest Ag
	5-3	0.85 Cu – 0.15 Si – Rest Ag

The initial reflectance of thus obtained thin film was measured, and, then, the rate of change was obtained from the reflectance of Ag thin film of Comparative Example 5-1, according to the following equation:

Rate of change (%) = 100 – [(Reflectance of each sample / Reflectance of Ag) × 100]

Results are shown in Table 11 below.

Table 11

		Rate of change (%)	
	Sample No.	Measured wavelength 400 nm	Measured wavelength 700 nm
Example	5-1	0.24	0.29
Comparative Example	5-1	0	0
	5-2	0.64	0.39
	5-3	6.85	0.53

It is seen from Table 11 that the Ag base alloy of Example 5-2 which contains no Si shows small rate of change of reflectance whereas the Ag base alloy of Example 5-3 to which Si has been added shows large rate of change of reflectance in particular at wavelengths of 400 nm; it is known that the addition of Si lowers the reflectance of Ag base alloy.

The undersigned declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application of any patent issuing thereon.

Signed this 26th day of October 2009

Koichi Hasegawa

Koichi HASEGAWA